

AN AIRBORNE EVALUATING EQUIPMENT STUDY

PRC D-1176

Quarterly Progress Report

9 February - 8 May

Contract NAS8-20367

. 21 July 1967 .

PLANNING RESEARCH CORPORATION  
LOS ANGELES, CALIF.      WASHINGTON, D. C.

FACILITY FORM 602	<b>N67-85458</b>	
	(ACCESSION NUMBER)	(THRU)
	<i>5</i>	(CODE)
	<i>CR-87540</i>	(CATEGORY)
	(PAGES)	
	(NASA CR OR TMX OR AD NUMBER)	

This report was prepared by Planning Research Corporation under Contract No. NAS8-20367, "An Airborne Evaluating Equipment Study," for the George C. Marshall Space Flight Center of the National Aeronautics & Space Administration. The work was administered under the technical direction of Quality and Reliability Assurance Laboratory, Marshall Space Flight Center, with Walter T. Mitchell acting as project manager.

## PROGRESS DURING REPORTING PERIOD

Contract work progressed normally during the reporting period. The most significant activities were applied to the following four major tasks:

### Part I - System Documentation of OCDMS

The NASA technical program manager presented comments concerning the review of the Onboard Checkout and Data Management System (OCDMS) General Specification during coordination meetings held at MSFC. The resulting technical direction and action-items began efforts to improve and clarify certain performance/design characteristics mainly dealing with operational aspects and OCDMS software specifications. .

Other preliminary system documentation was completed and submitted to the MSFC technical group. Draft copies and briefings reported the results of analysis and supplemental design information covering:

- OCDMS Logic and Signal Design
- OCDMS Man/machine Interfaces
- Test Plan for Effectiveness Evaluation of Control-Display Unit

The specific information flow requirements on the man-machine interface were redefined. Alternate implementation techniques to satisfy these control and display requirements were postulated. Further analysis was planned to identify and evaluate alternate design approaches dictated by mission-dependent requirements.

### Part II - Software Specifications

Preliminary drafts of the two Part I OCDMS computer program contract end-items (CPCEI) specifications were prepared following the guidelines of Exhibit XVIII to NPC 500-1, and submitted for MSFC review. However, work continued in an effort to expand and clarify these performance/design requirements. Analysis was undertaken to assure compatibility of

the CPCEI specifications with more definitive hardware and overall system requirements previously not available. Comparisons were made with Air Force MOL program software. Where applicable because of these activity, the OCDMS specifications were upgraded or clarified.

### Part III - Management Level Briefing for OCDMS

A document was prepared for an overall OCDMS management level briefing with emphasis given to information related to a breadboard facility. Major points of the document described:

- 1) OCDMS roles projected over the next few years;
- 2) identification of on-board checkout accomplishments to date;
- 3) objectives of an OCDMS breadboard facility;
- 4) approaches and reasons for proposed breadboard design and operating techniques;
- 5) evolution potential for an OCDMS breadboard facility.

### Part IV - Project Management and Reviews

General project management and technical reviews were conducted in conjunction with the following specific tasks:

- 1) On-Going Design and Documentation Revision

Analytical efforts were directed toward validating the current conceptual software system design. Examination was made of available information on S/AA Experiments and a representative set of procedures was selected to be hypothetically serviced by the OCDMS Software System. Test procedures were developed that indicate real-time performance characteristics, computational accuracies, storage limitations, and other critical factors.

- 2) Computer Selection Assistance

The activity to finalize the design criteria, objectives, and to develop the quantitative measures for the selection of the OCDMS computer proceeded as a joint MSFC/PRC effort.

#### PROGRAM PLANNING CHART

Continuation of analysis and specification preparation will depend on negotiations of a contract modification. Change is required to the scope of work and the amount of contract cost or in the period of performance. A subsequent report will detail the long-term manning plans once the necessary contract modification has been completed.